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August 15, 1990

Meeting Minutes Transmittal/Approval
Unit Managers Meeting: 100-HR-1/HR-3/DR-1 Operable Unit
450 Hills Street, Room 47, Richland Washington
July 18, 1990

From/
Appvl.: James D. Goodenough Date: 16 August 1990
James D. Goodenough, 100-HR-1 Unit Manager, DOE-RL (A6-95)

for: Michael Thompson Date: 16 August 1990
K. Michael Thompson, 100-HR-3 Unit Manager, DOE-RL (A6-95)

Appvl.: Larry Goldstein Date: 8/16/90
Larry Goldstein, 100-HR-1 Unit Manager, WA Department of Ecology

Appvl.: Charles S. Cline Date: 8/16/90
Charles S. Cline, 100-HR-3 Unit Manager, WA Department of Ecology

Appvl.: Douglas R. Sherwood Date: 8/16/90
Douglas R. Sherwood, 100-HR-1, 100-HR-3 Unit Manager, EPA (B5-01)

Meeting Minutes are attached. Minutes are comprised of the following:
Attachment #1 - Meeting Summary/Summary of Commitments and Agreements
Attachment #2 - Attendance List
Attachment #3 - Commitments/Agreements Status List
Attachment #4 - Interim Measures Provided for by the HR-1 Workplan
Attachment #5 - Interim Measures Provided for by the HR-3 Workplan

Prepared by: Doug Fiddell Date: 8/16/90
SWEC Support Services

Concurrence by: Alan D. King Date: 8/16/90
WHC HR-1 RI Coordinator

Concurrence by: W. V. Paul Date: 8/16/90
WHC HR-3 RI Coordinator

Concurrence by: Stephen Warr Date: 8/16/90
WHC DR-1 RI Coordinator



Attachment #1

Meeting Summary and Summary of Commitments and Agreements
100-HR-1/100-HR-3/100-DR-1 Operable Unit Managers Meeting
450 Hills Street, Room 47
July 18, 1990

Meeting Summary/Summary of Commitments and Agreements

1. The DR-1 meeting is postponed until July 31 because of the delay of Ecology's comments on DR-1. The comments are based on the final review of the DR-1 Workplan. Responses to Ecology's comments will be discussed at the meeting.

Action #HR1.21: Delay publishing HR-1 and HR-3 until the meeting on DR-1 is held. October 15 is the target date to provide all three workplans to the public. Action: Jim Goodenough.

Action #HR1.22: Give EPA advanced copies of HR-1 and HR-3 by August 1; provide a description of changes later. Action: K.M. Thompson and J.D. Goodenough

Action #HR1.23: Provide all three workplans to regulators by the August 31 target date or four weeks after the resolution of comments on DR-1 (hammer date). Provide copies of the workplans to the public by October 15 (critical to Ecology). Action: K.M. Thompson and J.D. Goodenough

2. Preliminary copies of HR-1 and HR-3 should be available next week (the week of July 23).
3. Fred Roeck will transmit resolution of comments next week.
4. The HR-1 nonintrusive work is still in the planning stage.

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Attachment #2
Attendance List
100-HR-1/HR-3/DR-1 Unit Managers Meeting
July 18, 1990

Name	Organization	Responsibility	Phone
Cline, Chuck	Ecology	Unit Manager, 100-HR-3	206-438-7556
Cross, Steve	Ecology		206-459-6675
Goodenough, J. D.	DOE-RL/ERD	Unit Manager, 100-HR-1	509-376-7087
Thompson, K. M.	DOE-RL	OU Manager	509-376-6421
Fassett, Doug	SWEC	GSSC for DOE/RL	509-376-3136
Burger, John	SWEC	GSSC for DOE/RL	509-376-2636
Staubitz, W.	USGS	EPA Consultant	206-593-6510
Drost, B.	USGS	EPA Consultant	206-593-6510
Lacombe, D.	PRC	EPA Consultant	206-624-2692
Krug, A. D.	WHC	100-HR-1	509-376-5634
Weiss, Steve	WHC	100-DR-1	509-376-1683
Lauterbach, M.	WHC		509-376-5257

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Attachment #3

Commitments/Agreements Status List
 100-HR-1/HR-3/DR-1 Operable Unit
 June 13, 1990

Item No.	Action	Status
HR1.19:	EPA/Ecology will be provided with the component of the work plan that concerns interim measures, before the final version of the work plan. Action: Alan Krug (6/13/90, HR1-UMM)	Closed Copies will be provided to be attached to the minutes. (7/18/90)
GT.56:	Provide copies of DOE Order 5400.5, and the 300-FF-1 surveillance report of Surface radiation Surveys to EPA/Ecology. Action: Bob Stewart. (6/13/90, HR1-UMM)	Closed Transmitted as requested on June 14, 1990. This item has been transferred to General Topics, Item #GT.56. (6/13/90)
HR1.20:	To explore schedule and events for a site tour for Ecology, tentatively scheduled for July 19, 1990. Action: Jim Goodenough (6/13/90, HR1-UMM)	Closed The site tour has been arranged. (7/18/90)
HR1.21:	Delay publishing HR-1 and HR-3 until the meeting on DR-1 is held. October 15 is the target date to provide all three workplans to the public. Action: Jim Goodenough (7/18/90, HR1-UMM)	Open (7/18/90)
HR1.22:	Give EPA advanced copies of HR-1 and HR-3 by August 1; provide a description of changes later. Action: K.M. Thompson and J.D. Goodenough (7/18/90, HR1-UMM)	Open (7/18/90)
HR1.23:	Provide all three workplans to regulators by the August 31 target date or four weeks after the resolution of comments on DR-1 (hammer date). Provide copies of the workplans to the public by October 15 (critical to Ecology). Action: K.M. Thompson and J.D. Goodenough (7/18/90, HR1-UMM)	Open (7/18/90)

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- *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (Interim Final) (EPA 1989c).*
- Data Quality Strategy for Hanford Site Characterization (WHC 1990).

This chapter sets forth the general purpose, scope, and goals of the project. The structure of the work plan, and functions of the various chapters and attachments, are also outlined.

1.1 PURPOSE AND SCOPE OF THE RFI/CMS

Pursuant to CERCLA, the EPA added the 100 Aggregate Area at the U.S. Department of Energy's (DOE) Hanford Site to the NPL on November 3, 1989. In anticipation of this proposal being finalized, DOE has divided the 100 Aggregate Area into operable units for the purpose of increasing the manageability of the Hanford Site characterization and corrective action processes (WHC 1989a).

Several waste management units referenced in EPA's NPL nomination proposal for the 100 Aggregate Area are located within the 100-H Area (EPA 1988b). The 100-H Area has been further subdivided into three operable units: 100-HR-1, 100-HR-2, and 100-HR-3 (Figure 2). The 100-HR-1 operable unit, the subject of this work plan, is known as a reactor liquid effluent operable unit because it contains all liquid waste disposal facilities within the 100-H Area (DOE-RL 1988b). The scope of the 100-HR-1 operable unit includes waste sources, contaminated soils, air, and terrestrial biota.

The 100-H Area also contains a solid waste operable unit, 100-HR-2, which is located immediately adjacent to 100-HR-1. The scope of 100-HR-2, except for location and the types of waste management units present, is identical to the 100-HR-1 operable unit. A separate groundwater/surface water operable unit, 100-HR-3, has also been designated for the 100-H Area. As such, all groundwater, surface water, and aquatic biota investigations for the entire 100-H Area will be carried out in accordance with the 100-HR-3 work plan (DOE-RL 1990a).

The purpose of the RFI/CMS outlined in this work plan is to determine the nature and extent of the threat presented by releases of hazardous substances from the 100-HR-1 operable unit and to evaluate proposed corrective measures for such releases.

The RFI/CMS activity described in this work plan is to be integrated with the activity for all the operable units within the confines of the 100-HR-3 operable unit. This covers the operable units 100-HR-1, 100-HR-2, 100-DR-1, 100-DR-2, 100-DR-3, and 100-IU-4. It also includes the undesignated portions of the 600 Area between these operable units. These seven operable units are considered to be a groundwater aggregate area.

The 100-HR-3 work plan serves as the document which links these operable units together. By closely integrating source and groundwater operable units, the information gained from each of the investigations will be available for input into the source and groundwater risk assessments conducted in parallel.

or laboratory, should be looked on as a focusing process where key unknowns are addressed first, with subsequent information filling critical data gaps.

1.5 PERMIT MODIFICATION AND SUPPORT DOCUMENTATION

Following completion of RFI/CMS activities, a modification to the Hanford RCRA permit and a corrective action summary are prepared to summarize all previous work, to document decisions made or recommended, and to respond formally to public comments.

Therefore, the purposes of this CERCLA-compatible RFI/CMS are to summarize existing information on the 100-HR-3 operable unit, to develop a technically sound rationale for future environmental investigations, and to address initial RFI/CMS activities for the 100-HR-3 operable unit. This work plan was developed in accordance with the following requirements:

- Resource Conservation and Recovery Act of 1976 (RCRA) [Section 3004(u)] corrective action provisions
- Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA)
- National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300).

Subsequent sections of this chapter describe the strategy, scope, and goals of the RFI/CMS process as they pertain to the 100-HR-3 operable unit. The structure of this work plan and the technical content of its components and attachments also are outlined.

1.6 PURPOSE AND SCOPE OF THE RCRA FACILITY INVESTIGATION/CORRECTIVE MEASURES STUDY

The purposes of an RFI/CMS are to determine the nature and extent of the threat posed by a release of hazardous substances to the environment and to evaluate proposed remedies for such a release.

This 100-HR-3 Work Plan focuses primarily on the groundwater beneath the northern portion of the Hanford Site. This groundwater underlies the 100-DR-1, 100-DR-2, 100-DR-3, 100-HR-1, 100-HR-2, and 100-IU-4 operable units. Also included are the undesignated portions of the 600 Area between these operable units. These seven operable units are considered to be a groundwater aggregate area.

A second focus of the RFI/CMS is to integrate more closely the source and groundwater operable units such that the information gained from each of the

The 100-HR-3 groundwater aggregate area encompasses several source operable units which are scheduled for investigation much later in the program. Consequently, there is need to provide early identification of the specific sites within these lower priority source operable units which are significant contributors to groundwater contamination. This will be accomplished by screening all source units, within the groundwater aggregate area, as part of the 100-HR-3 source investigation activity. A source unit which, as a result of this screening process, requires early attention will be addressed by accelerating its priority for RFI site characterization or by considering it for an Interim Measure (IM) or Imminent and Substantial Endangerment (ISE) action as appropriate.

1.2 PROJECT GOALS

The goal of the 100-HR-1 operable unit RFI is to provide sufficient information needed to conduct the CMS, by determining the following:

- The nature and extent of the threat to public health and the environment, posed by releases of hazardous substances from the operable unit facilities in soil, air, and terrestrial biota (groundwater, surface water and associated sediments, and aquatic biota will be addressed in the 100-HR-3 RFI).
- The performance of specific corrective measure technologies.

The DOE will, to the extent necessary and sufficient, carry out these determinations to allow for the evaluation of corrective measure alternatives during the CMS.

The goal of the 100-HR-1 operable unit CMS is to evaluate potential corrective measures that encompass a range of appropriate waste management options by developing, screening, and analyzing corrective measure alternatives.

The ultimate goal of the RFI/CMS is to allow the selection, for subsequent implementation, of a cost-effective corrective measure that ensures the protection of public health and the environment. After public review of the RFI and CMS reports, an appropriate corrective measure will be selected and documented because a RCRA modification is followed by design, implementation, and monitoring of the chosen corrective measure.

The RFI/CMS is divided into four phases--two RFI phases (operable unit characterization and treatability investigation) and two CMS phases (corrective measure alternatives development and screening and corrective measure alternatives analysis). The RFI and CMS are conducted concurrently in an interactive manner. The data collected during the RFI provide the information needed to evaluate corrective measure alternatives in the CMS; the CMS, in turn, determines the data collection objectives for the RFI.

Figure 3 shows how the RFI/CMS fits into the overall corrective action process. Each phase of the RFI/CMS and its corresponding objective is indicated.

investigations is available for input into the source and groundwater risk assessments conducted in parallel. This 100-HR-3 Work Plan serves as the document that links these activities.

Since a groundwater operable unit covers an area encompassing several source operable units, many of which are scheduled for investigation much later in the program, there is a third focus. This is to provide early identification of the specific sites within these lower priority source operable units that are significant contributors to groundwater contamination. This will be accomplished by screening all source units within the groundwater aggregate area as part of the 100-HR-3 source investigation activity. Source units that, as a result of this screening process, require early attention will be addressed by accelerating its priority for RFI site characterization or considering it for an interim measure or imminent and substantial endangerment action, as appropriate.

1.7 PROJECT GOALS

The following are the goals of the 100-HR-3 operable unit RFI/CMS process:

- determine the nature and extent of contamination in the groundwater, including the deeper aquifers, surface water and associated sediments, and aquatic biota
- assess the potential threat to the public and surrounding environment from the discharge of contaminated groundwater into the Columbia River
- develop and evaluate corrective measure alternatives that may be used to protect public health and the environment.

1.8 WORK PLAN ORGANIZATION

This 100-HR-3 Work Plan generally conforms with current draft guidance for remedial investigation/feasibility study (RI/FS) activities under CERCLA (EPA 1988a) and the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300), with the exception of the use of RCRA terminology.

This 100-HR-3 Work Plan is intended to be an evolving document that will be amended, as necessary, throughout the project. In this manner, this work plan will provide an effective direction consistent with goals. A dynamic work plan also helps document the rationale for decisions and conclusions, thereby assisting in subsequent remediation decisions.

This 100-HR-3 Work Plan consists of seven chapters, in addition to this introduction, and supporting attachments. Chapter 2.0 presents the location

5.2 RCRA FACILITY INVESTIGATION-- OPERABLE UNIT CHARACTERIZATION

Chapters 2.0 and 3.0 provided discussions about the current knowledge of the environmental characteristics and distributions of contaminants in the 100-HR-3 operable unit. These discussions provided the basis for identifying additional data needed to evaluate hazards associated with the 100-HR-3 operable unit and to design and implement corrective actions. Chapter 4.0 presented these needs in the form of 12 specific tasks. These tasks are discussed individually in this section. The data needed, techniques for collecting the data, and data uses are presented.

5.2.1 Task 1--Project Management

The purpose of project management is to define the administrative and institutional tasks necessary to support RFI/CMS activities in the 100-HR-3 operable unit. Attachment 3--Project Management Plan presents the descriptions of project management.

5.2.2 Task 2--Source Investigations

Known sources of contamination within the 100-DR-1 and 100-HR-1 operable units and their investigation are discussed in their respective work plans (DOE 1990a, 1990b). Other waste disposal facility source investigations are integrated with groundwater and associated surface-water and sediment investigations proposed in Sections 5.2.6 and 5.2.4, respectively. Those source areas in operable units 100-DR-2, 100-DR-3, 100-HR-2, and 100-IU-4 will be investigated as a screening activity as part of this 100-HR-3 Work Plan. If further investigation is required, the work plan will be updated to reflect the additional work.

The source investigation is composed of four subtasks:

- Subtask 2a--Data Compilation
- Subtask 2b--Topographic Maps
- Subtask 2c--Field Activities
- Subtask 2d--Source Unit Screening.

5.2.2.1 Subtask 2a--Data Compilation. The objective of this activity is to obtain additional information on the waste sources within the 100-HR-3 operable unit. Source data compilation for the 100-DR-1 and 100-HR-1 operable units is described in Section 5.1.2.1 of the 100-DR-1 and 100-HR-1 Work Plans (DOE 1990a and 1990b, respectively). This subtask will provide similar information for the 100-DR-2, 100-DR-3, 100-HR-2, and 100-IU-4 operable units to the extent necessary to conduct the screening activity described in Subtask 2d--Source Unit Screening.

Two activities: (1) a literature and data search and (2) a meeting and operable unit visit, have been established to accomplish the objectives for this subtask. An attempt will be made to locate additional engineering plans

and environmental or decommissioning reports that have not been reviewed during the work plan preparation that are pertinent to the waste sources within the 100-HR-3 operable unit. An attempt will be made to identify and locate former and current 100-HR-3 operable unit personnel having knowledge of past disposal practices and decommissioning processes. Meetings and visits will be held with these people to obtain further information on the waste sources.

5.2.2.2 Subtask 2b--Topographic Maps. A topographic base map will be developed from aerial photographs using the National Geodetic Survey coordinate system. The waste facilities in 100-DR-1, 100-DR-2, 100-DR-3, 100-HR-1, 100-HR-2, and 100-IU-4 will be precisely located and included on the 100-HR-3 operable unit topographic map. The map will extend 200 m (660 ft) beyond the operable unit boundary and will be prepared with third-order precision and accuracy.

Horizontal control will be provided for sampling points and/or grids required to complete the following subtasks:

- Subtask 2c--Field Activities (source investigations)
- Subtask 4b--Field Activities (surface-water and sediment investigations)
- Subtask 5b--Field Activities (vadose zone investigations)
- Subtask 6b--Field Activities (groundwater investigation)
- Subtask 8b--Field Activities (ecological investigations).

Horizontal control will provide a plane survey accuracy of ± 0.3 m (1 ft). Locations of vadose zone borings in Subtask 5b will be surveyed for both horizontal and vertical accuracy. The vertical plane survey must be accurate to ± 0.03 m (0.1 ft) and will be obtained at the borehole well surface locations.

The topographic mapping will include some field activities (such as ground location of aerial photo-mapping-control points).

5.2.2.3 Subtask 2c--Field Activities. As a part of the source investigation, Subtask 2c is used to define the nature and extent of operable unit and source area contamination. These data are used as input to the risk assessment and treatability studies.

A field radiological survey for surface radiological contamination, using portable instruments, will precede any field activities in the 100-HR-3 operable unit. A horizontal grid, centered on each borehole, well site, or test pit will be established by a tape and compass traverse. The grid will be a minimum of 200 by 200 ft, with coordinates established at 25-ft centers. Each of the three geophysical instruments (electromagnetic induction/magnetometer, ground-penetrating radar) and the radiation instrument (sodium iodide beta/gamma detector) will use the same grid dimensions. Areas with radiation levels statistically greater than background will be staked and flagged for

location on the topographic map (produced in Subtask 2b) and for more detailed soil investigation (produced in Subtask 5c).

5.2.2.4 Subtask 2d--Source Unit Screening. Another focus of the 100-HR-3 Work Plan is to screen all waste sites within the aggregate area to determine if: (1) the existing priority for that waste site should be revised and if that site should be investigated earlier than planned, (2) the site should be considered for an interim measures action, or (3) the site should be considered for imminent and substantial endangerment action.

The screening will be based on the information generated during Subtask 2a--Source Data Compilation. If, as a result of the screening process, any of the above actions are warranted, this work plan will be updated to reflect the actions.

The screening process will be consistent with the regulatory guidance given in EPA (1988b), the proposed RCRA regulations at 40 CFR 264, and the CERCLA regulations at 40 CFR 300.410.

5.2.3 Task 3--Geologic Investigations

The geologic setting of the 100-DR-1 and 100-HR-1 operable units is given in Section 2.2 of the 100-DR-1 and 100-HR-1 Work Plans. The well logs and other pertinent data generated by the well drilling in Stages I and II will be used to determine the adequacy of the present geologic knowledge of the 100-HR-3 operable unit.

Geologic investigations are composed of the following subtasks:

- Subtask 3a--Data Compilation
- Subtask 3b--Field Activities
- Subtask 3c--Laboratory Analysis
- Subtask 3d--Data Evaluation.

5.2.3.1 Subtask 3a--Data Compilation. The regional setting of the 100-HR-3 operable unit is reasonably well-known from the work done for the Basalt Waste Isolation Project from 1978 to 1986. This will be used to place the 100-HR-3 operable unit geology into a regional setting. The local detailed geology within 100-HR-3 is less well-known. A certain amount of data are available from the logs of wells existing within the 100-HR-3 operable unit, but additional data are needed to adequately model migration rates, flow directions, and water levels as influenced by adjacent levels of the Columbia River. Information from logging and sampling of the Stages I and II wells, to be drilled to determine source facilities and to furnish data to allow contaminant migration modeling in the 100-HR-3 operable unit, will be integrated with the present database to further refine the operable unit geology.

5.2.3.2 Subtask 3b--Field Activities. Field activities include surface geologic mapping of the 100-HR-3 operable unit. The vadose zone core-sampling results (Task 5) also will be included to describe several sections through

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ADMINISTRATIVE RECORD: 100-HR-1, 100-HR-3, 100-DR-1; Care of Susan
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